

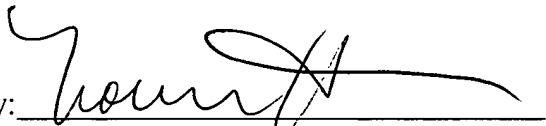
REMARKS

Entry of the foregoing amendment is requested.

Prompt examination is requested.

Respectfully submitted,

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Revised section of Page 4, lines 31-35:

Figure 1 shows the alignment of the serine/threonine (S/T) kinase domain (I-VIII) of related receptors from transmembrane proteins, including embodiments of the present invention. The nomenclature of the subdomains is accordingly to Hanks et al. (1988). The amino acid sequences are set forth at amino acids 246-427 of SEQ ID NO: 32, 216-391 of SEQ ID NO: 31, 194-368 of SEQ ID NO: 30, and 1-178 of SEQ ID NO: 33.

Revised section of Page 5, lines 3-8:

Figure 3 is a comparison of the amino-acid sequences of human activin type II receptor (Act R-II), mouse activin type IIB receptor (Act R-IIB), human TGF- β type II receptor (T β R-II), human TGF- β type I receptor (ALK-5), human activin receptor type IA (ALK-2), and type IB (ALK-4), ALKs 1 & 3 and mouse ALK-6. See SEQ ID NOS: 30, 31, 32, 10, 2, 4, 6, 8, and 18.

Revised section of Page 5, lines 12-14:

Figure 5 shows the sequence alignment of the cysteine-rich domains of the ALKs, T β R-II, Act R-II, Act R-IIB and daf-1 receptors. See positions 34-95 of SEQ ID NO: 2, 35-99 of SEQ ID NO: 4, 61-130 of SEQ ID NO: 6, 34-100 of SEQ ID NO: 8, 36-106 of SEQ ID NO: 10, 30-110 of SEQ ID NO: 30, 29-109 of SEQ ID NO: 31, 51-143 of SEQ ID NO: 32, and 5-101 of SEQ ID NO: 34.

TABLE 2

KINASE	SUBDOMAINS (See 10 NOS:)	
	VIB	VIII
Serine/threonine kinase consensus	DLKPEN 35	G (T/S) XX (Y/F) X 37-40
5 Tyrosine kinase consensus	DLAARN 36	XP (I/V) (K/R) W (T/M) 41-47
Act R-II	DIKSKN 322-327 of seq. 1020	GTRRYM amino acids 361-366 of seq. 1020
Act R-IIB	DFKSKN 345-350 of seq. 1020	GTRRYM amino acids 361-366 of seq. 1020
TBR-II	DLKSSN 379-384 of seq. 1020	GTARYM amino acids 420-425 of seq. 1020
ALK-I	DFKSKN 330-335 of seq. 1111	GTKRYM 29 29
10 ALK -2, -3, -4, -5, & -6	DLKSKN 28	GTKRYM 29

The sequence motifs DLKSKN (Subdomain VIB) and GTKRYM (Subdomain VIII), that are found in most of the serine/threonine kinase receptors, agree well with the consensus sequences for all protein serine/threonine kinase receptors in these regions. In addition, these receptors, except for ALK-1, do not have a tyrosine residue surrounded by acidic residues between subdomains VII and VIII, which is common for tyrosine kinases. A unique characteristic of the members of the ALK serine/threonine kinase receptor family is the presence of two short inserts in the kinase